

What is Claimed is:

1. A process for preparing benzhydrylthioacetate comprising reacting benzhydryliothiocarboxamidine salt with haloacetate in a reaction medium comprising an organic solvent and an organic base or inorganic basic salt.
2. The process of Claim 1 wherein the base is selected from the group consisting of sodium sulfate, calcium sulfate, magnesium sulfate, sodium sulfide, magnesium sulfide, calcium sulfide, sodium phosphate, magnesium phosphate, calcium phosphate, potassium phosphate, sodium bicarbonate, calcium bicarbonate, magnesium bicarbonate, sodium nitrate, calcium nitrate, magnesium nitrate, sodium phosphonate, potassium phosphonate, magnesium phosphonate, calcium phosphonate, sodium phosphinate, potassium phosphinate, calcium phosphinate, magnesium phosphinate, potassium sulfate, potassium sulfide, potassium bicarbonate, potassium nitrate, potassium tripolyphosphate, sodium tripolyphosphate, sodium thiophosphate, potassium citrate, tetrapotassium pyrophosphate, ammonium phosphate, ammonium chloride, ammonium sulfate, ammonium bicarbonate, ammonium phosphinate, dimethylformamide, ammonium phosphonate triethylamine and Hunig's base.
3. The process of Claim 1 wherein the basic salt is selected from the group consisting of alkali metal and alkaline earth metal sulfates, sulfides, phosphates, carbonates, bicarbonates, nitrates, phosphonates and phosphinates.
4. The process of Claim 1 wherein the haloacetate is selected from chloro-, bromo-, flouro- and iodoacetate.
5. The process of Claim 1 wherein the haloacetate is selected from alkyl acetates having from 1 to 5 carbon atoms in the ester group.
6. The process of Claim 1 wherein the haloacetate is 2-chloroacetate.
7. The process of Claim 6 wherein the 2-chloroacetate is methyl 2-chloroacetate.
8. The process of Claim 3 wherein the basic salt is a potassium salt.

9. The process of Claim 8 wherein the basic salt is a potassium bicarbonate salt.

10. The process of Claim 1 wherein the basic salt is present in a molar equivalent ratio to benzhydrylthiocarboxamidine salt of greater than about 0.1 equivalent per equivalent of benzhydrylthiocarboxamidine salt.

11. The process of Claim 10 wherein the basic salt is present in a molar equivalent ratio is in the range of about 2 equivalents per equivalent of benzhydrylthiocarboxamidine salt.

12. The process of Claim 1 wherein the organic solvent is selected from the group consisting of lower alkanols, acetone, dimethylformamide, diethylformamide and triethylamine.

13. The process of Claim 12 wherein the lower alkanol is selected from the group consisting of methanol, propanol, isopropanol, ethanol, butanol, sec-butyl alcohol, tert-butyl alcohol.

14. A process for preparing modafinil comprising the following steps:

a) reacting benzhydrol with thiourea in the presence of hydrogen halide to provide benzhydrylthiocarboxamidinehalide;

b) reacting haloacetate with the product of step a) to provide benzhydrylthioacetate in an organic solvent having dissolved therein an organic base or an inorganic basic salt and, without isolation, amidating the acetate to obtain benzhydrylthiolacetamide; and

c) oxidizing the product of step b) to obtain benzhydrylsulphinyacetamide.

15. The process of Claim 14 wherein the base is selected from the group consisting of sodium sulfate, calcium sulfate, magnesium sulfate, sodium sulfide, magnesium sulfide, calcium sulfide, sodium phosphate, magnesium phosphate, calcium phosphate, potassium phosphate, sodium bicarbonate, calcium bicarbonate, magnesium bicarbonate,

sodium nitrate, calcium nitrate, magnesium nitrate, sodium phosphonate, potassium phosphonate, magnesium phosphonate, calcium phosphonate, sodium phosphinate, potassium phosphinate, calcium phosphinate, magnesium phosphinate, potassium sulfate, potassium sulfide, potassium bicarbonate, potassium nitrate, potassium tripolyphosphate, sodium tripolyphosphate, sodium thiophosphate, potassium citrate, tetrapotassium pyrophosphate, ammonium phosphate, ammonium chloride, ammonium sulfate, ammonium bicarbonate, ammonium phosphinate, dimethylformamide, ammonium phosphonate triethylamine and Hunig's base.

16. The process of Claim 14 wherein the basic salt is selected from the group consisting of alkali metal and alkaline earth metal sulfates, sulfides, phosphates, carbonates, bicarbonates, nitrates, phosphonates and phosphinates.

17. The process of Claim 14 wherein the haloacetate is 2-chloroacetate.

18. The process of Claim 14 wherein the haloacetate is selected from chloro-, bromo-, flouro- and iodoacetate.

19. The process of Claim 14 wherein the haloacetate is selected from alkyl acetates having from 1 to 5 carbon atoms in the ester group.

20. The process of Claim 16 wherein the basic salt is selected from sodium or potassium salt.

21. The process of Claim 19 wherein the 2-chloroacetate is methyl 2-chloroacetate.

22. The process of Claim 20 wherein the basic salt is a potassium bicarbonate salt.

23. The process of Claim 16 wherein the basic salt is present in a molar equivalent ratio to benzhydrylthiocarboxamidine salt of greater than 0.1.

24. The process of Claim 23 wherein the basic salt is present in a molar equivalent ratio to benzhydrylthiocarboxamidine of about 2.

25. The process of Claim 14 wherein the organic solvent is selected from the group consisting of lower alkanols, acetone and dimethylformamide.

26. The process of Claim 14 further including the step of purifying the product of step c) which comprises contacting the crude product with a halo-organic solvent and then separating the modafinil from the solvent.

27. The process of Claim 26 wherein the temperature of the mixture of the product and halo-organic solvent is raised to a reflux temperature.

28. The process of Claim 27 wherein the reflux temperature is maintained for about 30 minutes.

29. The process of Claim 26 wherein the halo-organic solvent is selected from the group consisting of chloroform, dichloromethane, and dichloroethane.

30. The process of Claim 26 further including the step of adding an aliphatic solvent to the mixture.

31. The process of Claim 30 wherein an aliphatic solvent is added to product prior to contacting the product with the halo-organic solvent and the temperature of the mixture is raised to the reflux temperature.

32. The process of Claim 31 wherein the aliphatic solvent is selected from the group consisting of pentane, hexane, heptane and octane.

33. The process of Claim 32 wherein the halo-organic solvent is chloroform and the aliphatic solvent is heptane.